48. An isolated DNA comprising a DNA sequence having the sequence depicted in SEQ ID No. 1, SEQ ID No. 2, SEQ ID No. 20, or SEQ ID No. 32 or a sequence which is complementary to one which hybridizes under stringent washing conditions of 3x20 min in 0.5% SSC, 1% SDS at 65°C with said sequences and which encodes a protein having kinase activity.

49. The DNA according to claim 47, wherein the protein is a leucine rich repeat receptor like kinase and comprises a ligand binding domain, a proline box, a transmembrane domain, a kinase domain and a protein binding domain, the ligand binding domain optionally being absent or functionally inactive.

50. The DNA according to claim 48, wherein the protein is a leucine rich repeat receptor like kinase and comprises a ligand binding domain, a proline box, a transmembrane domain, a kinase domain and a protein binding domain, the ligand binding domain optionally being absent or functionally inactive.

51. The DNA according to claim 47, which further encodes a cell membrane targeting sequence.

52. The DNA according to claim 48, which further encodes a cell membrane targeting sequence.

53. The DNA according to claim 47, wherein the sequence is modified in that known mRNA instability motifs or polyadenylation signals are removed or codons which are preferred by the plant into which the DNA is to be inserted are used so that expression of the thus modified DNA in the said plant yields a protein having an amino acid sequence which is at least 90% similar to the sequence of that obtained by expression of the unmodified DNA in the organism in which the protein is endogenous.

54. The DNA according to claim 48, wherein the sequence is modified in that known mRNA instability motifs or polyadenylation signals are removed or codons which are preferred by the plant into which the DNA is to be inserted are used so that expression of the thus modified DNA in the said plant yields a protein having an amino acid sequence which is at

least 90% similar to the sequence of that obtained by expression of the unmodified DNA in the organism in which the protein is endogenous.

55. An expression vector containing the DNA sequence as claimed in claim 47.

56. An expression vector containing the DNA sequence as claimed in claim 48.

57. An expression vector according to claim 55, in which the protein encoding region is under expression control of a developmentally regulated or inducible promoter.

58. An expression vector according to claim 56, in which the protein encoding region is under expression control of a developmentally regulated or inducible promoter.

59. An expression vector according to claim 57, wherein the promoter is one of the following: a promoter which regulates expression of SERK genes *in planta*, the carrot chitinase DcEP3-1 gene promoter, the *Arabidopsis* AtChitIV gene promoter, the *Arabidopsis* LTP-1 gene promoter, the *Arabidopsis* bel-1 gene promoter, the petunia fbp-7 gene promoter, the *Arabidopsis* ANT gene promoter, the promoter of the O126 gene from *Phalaenopsis*; the *Arabidopsis* DMC1 promoter, the pTA7001 inducible promoter.

60. An expression vector according to claim 58, wherein the promoter is one of the following: a promoter which regulates expression of SERK genes *in planta*, the carrot chitinase DcEP3-1 gene promoter, the *Arabidopsis* AtChitIV gene promoter, the *Arabidopsis* LTP-1 gene promoter, the *Arabidopsis* bel-1 gene promoter, the petunia fbp-7 gene promoter, the *Arabidopsis* ANT gene promoter, the promoter of the O126 gene from *Phalaenopsis*; the *Arabidopsis* DMC1 promoter, the pTA7001 inducible promoter.

61. A method of producing seeds of the adventitious embryony type comprising the steps of:
    (i) transforming plant cells with an expression vector according to claim 55 to express the encoded kinase in the vicinity of the embryo sac,

(ii) regenerating the thus transformed material into plants, or carpel-containing parts thereof, and

(iii) collecting seeds produced.

62. The method according to claim 61, wherein the kinase is capable of autophosphorylation.

63. The method according to claim 61, wherein the kinase lacks a functional ligand binding domain but comprises a proline box, a transmembrane domain, a kinase domain and a protein binding domain.

64. The method according to claim 61, wherein, once incorporated into the cell membrane, the protein binding domain of said kinase is located intra-cellularly.

65. The method according to claim 61, wherein the sequence is modified in that known mRNA instability motifs or polyadenylation signals are removed or codons which are preferred by the plant into which the sequence is to be inserted are used so that expression of the thus modified sequence in the said plant yields a protein having an amino acid sequence which is at least 90% similar to the sequence of that that obtained by expression of the unmodified sequence in the organism in which the protein is endogenous.

66. The method according to claim 61, wherein expression of the sequence is under control of a promoter selected from the group consisting of a promoter which regulates expression of SERK genes *in planta*, the carrot chitinase DcEP3-1 gene promoter, the *Arabidopsis* AtChitIV gene promoter, the *Arabidopsis* LTP-1 gene promoter, the *Arabidopsis* bel-1 gene promoter, the petunia fbp-7 gene promoter, the *Arabidopsis* ANT gene promoter, and the promoter of the O126 gene from *Phalaenopsis*.

67. The method according to claim 61, wherein the sequence is expressed in the somatic cells of the embryo sac, ovary wall, nucellus, or integuments.

68. The method according to claim 61, wherein the endosperm within the seed results from fusion of polar nuclei within the embryo sac with a pollen-derived male gamete nucleus.

69. The method according to claim 61, wherein the sequence encoding the protein is expressed prior to fusion of the polar nuclei with the male gamete nucleus.

70. A plant cell transformed with the vector of claim 55.

71. A plant cell transformed with the vector of claim 56.

72. Plant cell according to claim 70, which is part of a whole plant.

73. Plant cell according to claim 71, which is part of a whole plant.

74. Plants transformed with the vector of claim 55, or the seeds or progeny of such plants.

75. Plants transformed with the vector of claim 56, or the seeds or progeny of such plants.

76. Plants which are derived from the seeds as produced by the method of claim 61.

77. A method of obtaining cultivars comprising the steps of fertilizing plants with the pollen of the plants of claim 74 and cultivars which result from the said method.

78. A method of obtaining cultivars comprising the steps of fertilizing plants with the pollen of the plants of claim 75 and cultivars which result from the said method.

79. A method of obtaining embryogenic cells in plant material, comprising transforming the material with the vector of claim 55, and subjecting said material to a compound which acts as a ligand for the gene product of the said sequence.